## REMARKS

Claims 1-11 are pending in the present application.

The rejection of Claims 1 and 2 under 35 U.S.C. §103(a) over JP 08168337 (cited as JP 08168537) in view of Shaklai and Kowalski is traversed.

JP 08168337 discloses a method for preserving fish meat by smoke treating the meat with a series of small smoke injections through an arrangement of needles (see Claim 1). As recognized by the Examiner, JP 08168337 fails to disclose or suggest a carbon monoxide concentration of 1100-2400 mg/kg and storage at about -18°C for months. The Examiner cites Kowalski as disclosing tune preservation for up to a year at -20°C following CO treatment. Further, pointing to column 8, lines 5-9, the Examiner cites Shaklai as disclosing "a method of preserving fish by treating with carbon monoxide at a concentration of 65-1300 mg/kg."

However, Applicants note that column 8, lines 5-9 of Shaklai do not contain the disclosure alleged by the Examiner. Moreover, even if Shaklai did contain a disclosure of a method for preserving tuna by treating with CO at a residual CO concentration of 65-1300 mg/kg, this would have no bearing on the claimed invention as the range 65-1300 mg/kg is several orders of magnitude apart from the claimed range of 1100 to 2400 μg/kg (see Claim 1). On this basis alone, the present rejection is believed to be untenable. Applicants further submit that Shaklai disclose treating meat with CO gas; however, treatment with CO gas is completely different from treatment with *smoke containing* CO gas. The differences between these two techniques are clearly described in the Description of Related Art section of the present specification. In particular, the Examiner's attention is directed to the paragraph bridging pages 2 and 3 of the present specification, which discusses the problems associated

with CO gas treatment. Applicants specifically direct the Examiner's attention to the following discussion of the problems associate with CO gas treatment:

> However, the treatment with CO makes the color of the tuna meat not a natural color but an excessively bright pink color (unnaturally bright color) to thereby mask a change in color caused by degradation of the tuna meat, and a low-grade tuna with a deteriorated quality looks as if a tuna of high grade. The resulting tuna meat may make an incorrect impression about freshness on consumers. (page 2, line 23 to page 3, line 4)

Applicants note that this problem and the solution proffered by the present invention is not apparent in any of the art of record. The present invention is based on the finding that the above smoking at a residual CO concentration of 1100 – 2400 μg/kg is effective, thereby, the resulting tuna meat is preserved from having excessively bright pink color irrespective of its freshness which makes an incorrect impression upon the consumer as to the meat's freshness as one finds with the method described in Shaklai. Moreover, the present method sufficiently prevents browning of tuna meat for the period required for distribution of captured tuna even at ordinary freezing temperatures of about -18°C, thus obviating the need to freeze and store at ultra-low temperatures (e.g., -60°C). The art of record neither recognizes this problem, nor provides any suggestion of the inventive solution of the present application. Accordingly, Applicants submit that the present invention is not obvious in view of the combined disclosures of JP 08168337 (cited as JP 08168537), Shaklai, and Kowalski.

In view of the foregoing, Applicants request withdrawal of this ground of rejection.

The rejection of Claim 2 under 35 U.S.C. §112, second paragraph, is obviated by amendment.

Red pigments in fish meat mainly include myoglobin (Mb), hemoglobin (Hb), and other pigments containing heme iron. Tuna is a typical fish with red flesh. n tuna meat, Mb occupies 90% or more of heme iron-containing pigments in the red flesh and occupies 80% or more of dark red flesh. The core of fresh tuna meat shows purplish red color, and Mb in this region is a reduced Mb containing a divalent iron ion. When the reduced Mb is exposed to air, it is bonded with oxygen ($O_2$) in the air and is converted into bright red oxymyoglobin ($O_2$Mb). However, when the oxymyoglobin is further left stand, the divalent iron bonded with Mb is oxidized and is converted into trivalent iron and thereby yields brown metmyoglobin (MetMb) (this process is referred to as "browning" or "metmyoglobin-formation"). The metmyoglobin-formation proceeds, however, even without exposure to the air and rapidly proceeds with an elevating temperature. The metmyoglobin-formation can only be prevented by freezing at an extra-low temperature of -60°C or below, treatment with carbon monoxide (CO) or pH control at present. The tuna containing bright red $O_2$Mb feels fresh, is therefore preferable and has high commercial value. However, the tuna containing brown metmyoglobin (MetMb) looks inferior and loses its commercial value. (paragraph bridging pages 1-2)

Since the consumer as to the freshness of the tune often uses the color as a quick index, it is important that once the tuna is thawed it displays a similar MetMb formation pattern as the untreated tuna. Accordingly, Claim 2 has been amended to reflect this important limitation (e.g., the smoked tuna meat is prevented from browning during freezing at about -18°C for 2.5 to 3.5 months and the smoked tuna meat after thawing exhibits metmyoglobin-formation to an extent near to that of an untreated tuna meat *such that the thawed tuna meat exhibits browning within about 12 days*).

Applicants request withdrawal of this ground of rejection.

Applicants submit that the present application is now in condition for allowance.

Early notification of such action is earnestly solicited.

Respectfully submitted,

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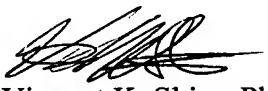

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